Massolin QB

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(CULTURE)

Elaborated and Prepared by

LEDERLE ANTITOXIN LABORATORIES

Schieffelin & Co.
NEW YORK

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MASSOLIN

(CULTURE)

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Massolin is a pure culture of the Bacillus Bulgaricus (a lactic acid producing bacterium described by Massol), in a medium adapted for introduction into the nose and throat, as well as other body cavities. . . . .

INDICATED IN THE TREATMENT OF SUPPURATIVE CONDITIONS.

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THE observations of Metchnikoff and other bacteriologists on the antagonism between lactic acid bacilli and putrefactive organisms in the intestine, have opened up a new method of treatment which is constantly gaining in popularity.

The fact that intestinal toxemia of bacterial origin is considered so potent a factor in the causation of many diseases has encouraged the belief that by the introduction of cultures of lactic acid bacilli into the bowel it would be possible to arrest the growth of putrefactive and other pathogenic bacteria.

Among the various lactic acid producing bacteria it was found by Metchnikoff that the Bacillus Bulgaricus, described by Massol, exerts the most pronounced effect in inhibiting the growth of putrefactive germs. Pure cultures of this Bacillus, however, have been employed only to a limited extent, the preparations in common use consisting chiefly of paralactic bacilli. *

In view of the well established antagonistic action of the Bacillus of Massol upon putrefactive bacteria in the intestinal tract, the Lederle Laboratories instituted some time ago an extensive

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* Dr. P. G. HEINEMANN.—*Journal American Medical Association,* Jan. 30, 1909.

series of investigations to determine whether this organism would not exercise a similar influence upon pathogenic germs in other parts of the body.

The chief aim in this investigation was to discover a culture medium which would serve for the introduction of the Bacillus Bulgaricus into other body cavities than the intestinal canal, in which ordinarily milk is used. Obviously milk on account of its curdling quality would be unsuitable elsewhere. After considerable experimentation an appropriate medium was found in a dextrose broth with the addition of calcium carbonate, as suggested by Dr. C. Z. Garside of the bacteriological staff of the Lederle Laboratories.

The cultures employed since the initiation of this investigation were originally obtained from Dr. William H. Park, to whom they were given by Prof. C. A. Herter, who in turn had received them from Prof. Metchnikoff.

Having discovered a medium that would assure a vigorous growth of the cultures, the next step was to determine clinically the possibilities of treatment with the Bacillus Bulgaricus in various diseases due to the agency of putrefactive and other pathogenic organisms.

Atrophic Rhinitis suggested itself at once as a disease in which, owing to the presence of putrefactive processes, relief might be expected from this new form of treatment.

At the request of the Lederle Laboratories, Dr. H. Holbrook Curtis, of New York, consented to test it in this affection, as well as in other inflammatory conditions of the nose and sinuses. Quantities of the culture sufficient for the treatment of an extensive series of cases, were furnished by the Laboratories to Dr. Curtis. His results proved so encouraging that the preparation was submitted to other physicians. It may be stated here that the reports of Dr. Curtis, as well as all other reports thus far published on this subject, are based upon experiments made with the product of the Lederle Laboratories.

One of the great advantages of this treatment is that it is unattended with the least risk of disagreeable or untoward effects, even when freely employed, as the Bacillus Bulgaricus has been shown to be devoid of any deleterious action upon the tissues with which it is brought in contact.

In the following pages are presented the results of this new mode of treatment in the various diseases in which it has been chiefly employed, based upon the published reports and upon communications received from a large number of physicians who have tested it. To distinguish the cultures of the Bacillus of Massol supplied by the Lederle Laboratories the name Massolin has been adopted.

ATROPHIC RHINITIS

In Atrophic Rhinitis which is so obstinate to all forms of treatment, the results have been most encouraging. The percentage of improvements has been remarkably large, averaging 88%, although, as might be expected, no definite cures have been reported, since in this chronic disease return to a normal condition is possible only during the early stage and after prolonged treatment. On the other hand, patients have been rendered much more comfortable and for much longer periods by its use.

As regards the direct effects observed, Massolin seems to exert a special action in dissolving the tenacious crusts, removal of which is often so difficult without injury to the mucous membrane; in arresting the offensive odor, present particularly in ozena cases, and in allaying irritation and pain.

INFLAMMATION OF THE FRONTAL SINUS

The excellent results derived in the treatment of inflammations of the frontal sinus would seem to show that the Bacillus Bulgaricus is as destructive to the growth of streptococci, staphylococci and other pus producing germs as it is to putrefactive bacteria. The proportion of cures thus far has been about 55% and of improvements about 20%. Under the use of Massolin there was a rapid diminution in the discharge and relief of the local discomfort.

DISEASES OF THE ETHMOIDAL CELLS.

A number of cases of ethmoiditis and ethmoidal trouble complicating rhinitis or inflammation of the accessory cavities have been treated with cultures of the Bacillus of Massol with improvement in 85% and a cure in 14%. The annoying discharge present in these cases was materially reduced and the formation of scabs in the nose prevented.

DISEASES OF THE ANTRUM

The action of Massolin in modifying the character of purulent discharges has also been noted in inflammation of the antrum. In about one-half of the cases reported there has been a diminution of the secretion which also assumed a mucoid character, and in several an entire cessation. In the others no benefit was obtained.

HAY FEVER

Although Massolin has not been employed in hay fever to a sufficient extent to permit of positive deductions as to its value, the results have been encouraging enough to justify further trials. The patients have been rendered more comfortable by the relief of sneezing and difficult breathing. As observed by Dr. Curtis, the remedy seems to exert a distinct contractile action upon the turgescent mucous membrane.

CHRONIC RHINITIS

In Chronic Rhinitis decided improvement has been reported from the use of Massolin, as evidenced by marked reduction or arrest of muco-purulent secretion, greater freedom in nasal breathing, and relief of accompanying headache.

ACUTE RHINITIS

The results in coryza have been so variable that no conclusions are warranted.

OTITIS MEDIA

In Otitis Media the most promising results have been noticed in cases in which the otitis complicated disease of the nose and accessory cavities. Massolin was employed here both for the treatment of the aural and nasal condition, and it is therefore difficult to judge whether it acted directly or indirectly upon the otitis. In cases of primary otitis its effect was less favorable.

LITERATURE

DR. H. HOLBROOK CURTIS (*Medical Record, July 11, 1908*), in an article on "Lactic Acid Bacilli Cultures in Nose, Throat and Ear Work," says: *

"Injections by means of a catheter into a profusely discharging frontal sinus have caused a diminution of the discharge, amounting to ninety per cent., after the second dose of a cubic centimeter of the culture, and this in a case of over a year's duration. In several instances of chronic ethmoiditis with profuse post-nasal discharge, the condition has been so relieved that the patient has asserted himself entirely cured.

"Of especial benefit it seems to be in the treatment of the early stages of atrophic rhinitis. In these cases the crusts liquefy and the nose presents an entirely different appearance after two or three applications. It is too early to state that there has been an actual cure in any of these cases, but the evidence has been so strong that it would seem to point to ultimate good results. I have no hesitation in saying at this stage that there is no topical application which approaches in any manner the efficacy of the lactobacilli culture in the treatment of mucopurulent secretion from the nose.

"The method of application has been as follows: In the nasal cavity a cubic centimeter of the culture broth has been sprayed under pressure on either side of the middle turbinate, in order to reach the anterior and posterior cell orifices, the theory being that the bacilli will find their way into the ethmoid cells and the accessory cavities, and by their secretion destroy the pyogenic bacilli which are causing the disease. A sterilized narrow test tube into which has been poured a cubic centimeter of the culture admits a sterile Sass spray tube and makes the application of the medium by compressed air pressure very convenient. In the sphenoid, frontal, and maxillary sinuses the culture may be syringed through the metal catheters appropriate to the locality. It is too early to state what improvement, if any, may be expected from this treatment in cases where there exists necrosis of the bone, but where the disease is confined to a pus-secreting membrane in the accessory cavities, it promises most excellent results.

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*The cultures employed in the treatment of these cases were those furnished by the Lederle Laboratories.

"The treatment of the cases cited below has been as follows: The nose is cleansed by sterile water or a mild saline solution, no antiseptic being employed. If a sinus is injected, or the meatus sprayed, the patient is directed not to blow the nose for an hour or two and to employ nothing as a spray or douche until the following day, when a mild saline solution may be employed if imperative for cleansing purposes."

Dr. Curtis reports the following cases as illustrating the effects of this new method of treatment:

FRONTAL SINUSITIS

Banker, age 56. Has suffered for twenty years from profuse post-nasal discharge. Right frontal sinus affected. Operated upon from within in 1905 and douched. All the ethmoidal region involved. Pain in frontal region and headache a constant factor. Douching does not now reveal presence of pus in frontal sinus. Constant hawking disturbs sleep at night. The nose was cleansed with distilled water, and sprayed as described into the middle and superior meatus. The first treatment was given May 12. On the 13th the discharge was thinner, 15th much less, 17th very much less and pain gone, on the 22d there was no discharge containing pus and there had been no pain. June 4th, conditions seem normal, patient says he is practically well—never dreamed of such comfort. June 19th, no recurrence of pain or discharge.

Mr. S, age 60. A year ago came from Brooklyn, with empyema of right frontal sinus. Tip of middle turbinate removed and sinus catheterized and douched. Pain was relieved but discharge, though much diminished, never ceased. May 16th, injected one cubic centimeter of the culture through a catheter into the sinus. May 18th, repeated treatment. May 24th, reports discharge diminished 75 per cent. June 4th, son called and reported discharge entirely stopped.

ETHMOIDITIS

Mr. G, age 54, lawyer. Has suffered from chronic suppurative ethmoiditis with profuse post-nasal dropping for many years. Removed a spur and cauterized turbinates. May 14th, 18th, 22d and 24th, sprayed nose, not yet healed, with the Massol bacillus culture. Patient reports that the second application diminished the discharge 75 per cent., the fourth proved even more efficacious; all hawking stopped. "No more discharge than natural." June 18th, patient continues free from morning accumulation in throat and has no mucopurulent discharge.

ATROPHIC RHINITIS

May 15th, Child, 9 years. Incipient atrophic rhinitis. Thick crusts around vestibule and inferior meatus full of mucopurulent secretion. Sprayed every day for two weeks with the Massol culture. From the first application softening of the crusts was noticed. The flecks of slate colored material on the middle turbinates disappeared. Discharged apparently cured June 18th.

Child, 11 years. Atrophic rhinitis. Nurse has offensive ozena. Commenced treatment May 16th, and has continued four weeks. The child is reported as being very much improved, being entirely free from "scabs." The nurse who has been using the same treatment, viz. a daily spray of Massol bacillus culture, says the crusts are dissolving; it is very easy to blow them out. Does not have to use swabs and douches. No odor. Both cases report marked improvement. Sailed for Europe June 13th.

ANTRUM DISEASE

Antrum and frontal sinus empyema of the left side. Woman, age 25. Cause, grippe infection in December last. Removed first molar and syringed antrum daily with antiseptic douches. Delayed radical canine fossa operation, hoping to avoid it by conservative methods. A brown and unhealthy pus clot as large as a nickel five cent piece was constantly found in the antrum washing. On May 20th, an injection of 1. c. c. lactobacillus culture was begun every other day. Discharge changed at once, the brown pus gave place to a lighter yellowish flocculent discharge which did not sink to the bottom of the dish. Frontal sinus could not be douched owing to deflected septum and impossibility of entrance within. Nose was sprayed. June 8th, patient reports great improvement. June 20th, frontal sinus has been constantly improving under home treatment with the Massol bacillus culture in an atomizer, until today there is no pus in nose; antrum is practically well. Only three injections were given in antrum.

In a later report on "Lactic Acid Bacilli in Ozena," read before the New York Academy of Medicine, with presentation of cases (*Medical Council, December, 1908*), Dr. Curtis states:

"To-day I unhesitatingly claim that it is the best means we have at our command in combating that most distressing disease, Ozena, accompanied by crust formation, and for the topical treatment of suppurative disease of the ethmoid cells and frontal sinuses.

"I will show you to-night a typical case of six ozena patients treated with equal success, and also a chronic double frontal sinus case, which I have relieved by this method. This case is also one of six cases which have shown remarkable results from the culture injections.

"Not only does the culture act on the pathogenic bacilli in the nasal and accessory cavities, but the active solution contains a product which has a pronounced effect upon the vaso-motor system of the nose. Turgescent hypertrophies seem to disappear; edematous conditions resulting from hay fever subside, and its effect on the swollen membranes in the first stages of a coryza is often very remarkable. These phenomena can hardly be attributed to lactic acid nor to the bacilli themselves, but to some agent in the culture solution, the identity of which has as yet not been determined.

"Another case I present is a lady who has been under my care for some years with a chronic suppurative otitis media. The right ear has been the offending member, but the discharge has been controlled by packing the tympanum with a 16 per cent. pyoktanin and boric acid powder whenever it becomes active, which event occurs about once a year. Two weeks ago the left ear, which had been quiescent for several years, suddenly became active, and a suppuration with carious odor commenced. I inflated the Eustachian tube and injected through the catheter some culture broth and dropped the same into the ear. Some pain was complained of shortly after the instillation, but to my surprise the discharge was checked in two applications. I will say, however, that this has not been the result in every case I have experimented on with the bacilli. In antrum cases where injections have been made through the natural orifice, as a rule, my results have been unsatisfactory.

"If in no other cases than in Ozena had we succeeded in giving great relief, we might still welcome the product produced by the Lederle Laboratory as of inestimable value."

Dr. Curtis described the following cases:

OZENA

M. T., age 35. Has had Ozena and crusts for eighteen years. He has been treated by several specialists. His home treatment has consisted in snuffing salt solution from a tumbler and removal of the crusts, following this with an antiseptic spray.

On Oct. 6th, he was referred to me by Dr. Robert Wheeler, of Brooklyn. I found his nasal mucous membrane excoriated in places and the cavities filled with a grumous mass of detritus, with pus on the surfaces in contact with the walls. His general health was greatly undermined. He suffered from constant nausea, indigestion, progressive emaciation, dizziness, headache, great weakness and inability to apply his mind to his work. A confused feeling at times was relieved by clearing out his nose.

After cleaning out his nasal fossæ and syringing with normal salt solution, I made a spray application with the Lacto-Bacilli culture.

After the first injection there was a marked relief in both nose and throat. After the second injection the purulent character of a post-nasal discharge underwent a great change. The hawking and choking entirely stopped, and with the disappearance of the crusts the purulent discharge has been daily becoming more transparent. After six injections the patient states that he is perfectly comfortable and estimates that his trouble has diminished more than ninety per cent.

DOUBLE FRONTAL SINUSITIS

Mr. J. F. For eighteen years this patient has had a very profuse discharge of pus from the nasal cavities, dropping into the throat, so much so that he was constantly clearing his throat during the night. His sleep was much disturbed.

For the last five years there has been more or less pain over both frontal sinuses. I operated upon the anterior tip of the right middle turbinate, and curetted the anterior ethmoid cells two years ago. I was enabled to syringe the sinus by means of the catheter and relieved the discharge somewhat, but pain continued. During the past winter the patient has suffered intensely after mental exertion, and has been unable to leave the house at night.

In June last, I cleansed both nostrils and injected both frontal sinuses, as well as I could and sprayed the nasal vault with a fresh culture. After the first injection, the discharge assumed a very different aspect, becoming thinner and more transparent. After the sixth injection, at intervals of two days, the pain and discharge entirely ceased.

A few days ago, after a severe cold, there was some pain and a slight discharge from the left frontal sinus. This, however, was relieved upon the second injection of the bacillus culture. I consider the condition at present to be normal and the patient considers himself cured.

MASSOLIN

Dr. Robert C. Myles (*The Laryngoscope, December, 1908*), in a discussion of Dr. H. H. Curtis' paper before the New York Academy of Medicine, said that the condition following the use of lactic acid bacilli in atrophic rhinitis is very remarkable in a certain type of purulent, sticky incrustations. It seems to lessen and dissolve them, and patients claim that they can dislodge the crusty secretion as they have never been able to do before. He has one patient who uses it every three hours during the day, and another patient with a fetid rhinitis in which the odor is decidedly diminished. In some of these cases the crusts have not been removed, but have been left in to see what the lactic acid bacilli would do without assistance. In cases of the milder and younger type the result of this treatment has been very remarkable, and if these good results continue it will be worthy of all the praise that can be given it. Dr. Myles also said that he had an ear case, with a history of discharge for ten years, in which the discharge seemed to come chiefly from the Eustachian tube and drum cavity. Many aurists had seen the case, but it had not been cured. He saw this case first in March, 1908, and treated it with the usual remedies without decided relief, until June, when he used the lactic acid bacillus. To his surprise the granulations shrunk and the discharge ceased, but this fall on his return, there was the same old story of purulent discharge and the tube had again filled up. Three treatments were applied, when the discharge again ceased and has not yet recurred.

In the *Medical Record* of *March 27, 1909*, Dr. Charles E. North reviews that portion of the investigation conducted by the Lederle Laboratories during his employment there as director of their bacteriological laboratories.

In Dr. North's paper the reports of a considerable number of physicians who have employed cultures of the bacillus of Massol furnished by the Lederle Laboratories are reviewed. We quote below a few of these cases which are typical of many that have been reported:

ATROPHIC RHINITIS

* "Dr. T. W. Tuggle, working at Dr. Myles' clinic at the New York Polyclinic, reports an interesting series of careful observations, of which the following is typical: Sadie K., age 16. Disease, atrophic rhinitis. Ozena. Previous history: Suffering since infancy with nose and throat. Numerous operations gave little relief. Used applications of various kinds. The odor was extremely offensive and the crust formations were the most tenacious I have ever seen and of the consistency of putty. Much dropping into throat. Continual hawking and blowing of nose. Treatment: Three treatments each week after thorough cleansing with warm saline solution; the culture of bacilli was sprayed into nasal passages and injected into antrum and sinuses with fine silver tube. After about ten treatments the putty-like crusts began to dissolve and take on a flocculent character and were easily dislodged. Odor greatly diminished; also throat condition shows marked improvement, with hawking now only mornings, and only every two or three days any accumulated pus, which can be easily blown out."

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*"In a later report, Dr. Tuggle states that he has treated more than 40 cases of Atrophic Rhinitis with the culture Bacillus Bulgaricus, all of which have been greatly improved. Of these cases Dr. Tuggle writes: Each and every case improved. Dismissed six, requesting them to return in four to six weeks. One reported, no recurrence. Cases dismissed treated four to five months. Note that I haven't reported a single *cure*, but majority of cases treated are wonderfully improved, and with continued treatment I believe will be eventually cured."

"Dr. Samuel Goldstein, Chief of Clinic, New York Throat, Nose and Lung Hospital, among other cases reports the following: N. R., age 30. Female. October 17th, 1908. Disease, atrophic naso-pharyngitis. Previous history: Has had disease nearly thirteen years. Thick scabs at times, sufficient to cause nasal obstruction. Very offensive odor. Treatment and results: Ichthyol and thigenol for past three years. For past four months lactic acid bacteria spray. The nares anterior and posterior were cleansed with alkaline spray and the lactic acid bacteria were sprayed anteriorly and posteriorly on alternate days; nares were plugged with cotton. After three treatments, the scabs became smaller and softer in consistency, and odor much less noticeable. Now the right side shows improvement. Fewer scabs and no odor. This is a very interesting case on account of marked symptoms of atrophy, with its attending discomforts and length of time under treatment. Still under observation."

FRONTAL SINUSITIS

"Dr. W. L. Culbert, New York City, reports the following: Mrs. T. Frontal sinus infection. Had suffered from this and been treated at intervals since October, 1907. Came for treatment July 14, 1908, because of pain over right eye and to have turbinates removed. Treatment: Lactic Acid suspension was injected into the right frontal sinus and into the right antrum, with the result that after six treatments the pain disappeared, the inflammation ceased and an operation was not considered necessary."

OTITIS MEDIA

"Dr. W. L. Culbert, of New York, reports the following case: Mr. P. H. Chronic suppuration in middle ear and nose all his life. First appeared for treatment August 20th, 1908. Had a discharge from right ear and left nostril. Treatment September 3d. Incised both ears and injected lactic acid suspension. Sprayed nostrils with the same. Continued this treatment at intervals of several days for six weeks. By September 25th, pus had disappeared from the nostril, ear ceased to discharge, eardrum healed up and patient was considered well."

ETHMOIDITIS

"Dr. J. L. Goodale of Boston, Mass., reports one of his cases as follows: W. P. G., age 44. Reported January 5th, 1907, with a right suppurative ethmoiditis, the antra, frontal sinuses and ethmoids being shown by the X-ray to be normal. He was treated during the following year by an argyrol spray and iodide of potash internally. Under this treatment a progressive improvement was noted until November of this year, when, although there was on the whole less discharge, a sufficient amount was formed daily to cause him annoyance. The culture of lactic acid bacteria was employed November 12th, by application to the ethmoid region and also used by the patient as a spray with marked diminution in the amount of the discharge and increased comfort. At present, December 23d, 1908, patient reported and expressed himself as confident that the use of the culture had been a marked benefit."

ANTRUM DISEASE

"Dr. Lee M. Hurd, of New York, reports a case as follows: Mrs. C., age 35. Has complained of nasal obstruction and polypi for one year. Examination revealed antrum disease, probably from carious teeth; also some ethmoidal infection. The antrum was opened into nasal cavity under inferior turbinate. The purulent discharge remained and the ethmoids continued to secrete white pus. This did not diminish under several months local treatment with antiseptics. Beginning September 17th, I injected solution of lactic acid bacilli into the antrum and middle meatus every other day without other treatment. The discharge has diminished and become more mucoid, with less color, but at the end of three weeks has not entirely disappeared. The improvement is considerable."

CHRONIC RHINITIS

"Dr. E. L. Meierhof, of New York City, reports a case as follows: Miss F. H., age 10. Mucopurulent rhinitis and adenoids. Previous history, difficulty in breathing by night and day. Examination showed mucopurulent discharge, suppuration from both nostrils. Adenoids were removed. No improvement in nasal discharge or breathing. The culture of lactic acid bacteria was sprayed into the nostrils every second day. After two treatments there was no further evidence of the mucopurulent secretion. An operation on the septum is needed to further improve the breathing."

MASSOLIN is put up in bottles containing one-quarter ounce each. It is supplied in two packages, one containing two bottles, and the other six. On each package is stamped a date after which unopened packages should be returned for exchange.

The amount to be employed varies according to the condition under treatment. It is essential that the culture be liberally applied *directly to the diseased area.* In the treatment of diseases of the nose and throat it is recommended that from two to five cubic centimeters be employed. A syringe, atomizer or canula, properly sterilized, may be used, *but the physician should keep in mind the necessity of having a liberal quantity reach the diseased area.*

It is also essential that before application of Massolin the surface treated should first be cleansed, and crusts, pus or other matter thoroughly removed, so that the culture may come in direct contact with the affected tissues. *Antiseptics should not be employed in connection with this treatment.* A warm saline solution may be used for preliminary cleansing. In some cases reported treatment was continued from three to five months, while in others positive results were noted after six or eight applications. This is mentioned here in order that physicians may not be discouraged too early in obstinate cases. It is recommended that in the treatment of nose and throat conditions Massolin be applied from three to four times weekly.

Massolin should be kept at a temperature ranging from 40° F. to 55° F. Should the entire contents of a bottle not be administered at the time of opening, precaution should be taken to prevent the contamination of that portion remaining in the bottle.

No untoward effects have been reported to us following the use of Massolin, with the exception of a few instances in which a burning sensation, lasting for a few moments, was experienced. As much as five cubic centimeters have been injected into the peritoneal cavity of guinea pigs without any effect.

Schieffelin & Co.
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